Item #19: Forest Birds

Evaluation Objectives: Monitor forest bird distribution, productivity and survivorship across the Forest with established Region 1 Landbird Monitoring program.

Methods: The forest has participated in the Northern Region 1 region-wide Landbird monitoring program that includes using standard point-count survey routes, Monitoring Avian Productivity and Survivorship (MAPS), and single species habitat use and distribution surveys. Combining data from all forests permits an assessment of trends and habitat relationships over the entire region and provides a better indication of population changes in widely dispersed bird species for habitat relationships to possible land management practices. Each local unit (district, forest) benefits from the increased power of the regional data set, while saving on the time and money that would otherwise be spent planning and conducting their own monitoring programs. Point counts comprise of about 350 transects on NFS lands (30 on each National Forest unit) and 200 transects on other lands (funded by program partners). Each transect consists of 10 permanently marked points, located along one lane roads or trails, at which 10 min bird counts are conducted according to a standard point count protocol. Monitoring Avian Productivity and Survivorship (MAPS) trapping and banding stations were operated at 44 mist-netting and banding locations on the FNF, Salish- Kootenai Confederate Indian Reservation, six regions, and 6 national forests for 10 years in order to provide indices of adult population size and post-fledging productivity.

Evaluation: The Forest Service entered two major partnerships for bird monitoring in the 1990s. One was with the Avian Science Center (ASC) at the University of Montana in 1994 when the Northern Region of the Forest Service (FS) initiated a region-wide landbird monitoring program (1994-2004) to help biologists and managers better understand the habitat relationships of landbirds breeding in this region. Additionally, the ASC also conducted or coordinated individual species habitat use and distribution surveys for flammulated owls, goshawks, and black-backed woodpeckers. A cooperative partnership also occurred with The Institute for Bird Populations which conducted a MAPS program in the Northern and Pacific Northwest Regions from 1992-2001.

LANDBIRDS
The Avian Service Center coordinated the Northern Region Land Bird Monitoring Program (LBMP), a program of point count and other bird surveys conducted throughout Montana and Northern Idaho. From 1994-2004, ASC surveyed over 370 permanently marked transects on an every-other-year basis, with the alternate years devoted to gathering monitoring data on the effects of various land-use practices or on single-species of management concern. During the fall of 2005, the LBMP was reviewed by Forest Service scientists. The primary outcome of this review was that the current Northern Region Landbird Monitoring Program is a very efficient program that has provided a solid baseline for long-term monitoring and a wealth of relevant data, yet it could provide better information for modeling bird distribution and abundance and could better inform management by adopting some changes in design and execution. The primary recommendations are to continue data collection with an emphasis on bird-habitat

relationships, adopt a grid-based sampling design (possibly utilizing the Forest Inventory Assessment (FIA) system), and repeat individual point counts within season (2-3 times).

Data from long-term permanent monitoring transects in the following table illustrates bird and vegetation data from every year visited. These data are used for long-term trend monitoring as well as for studying bird-habitat relationships. The numbers in the table are the number of transects in the file.

Table 19-1. The Number of Transects in R-1 National Forests

NATIONAL FOREST	1994	**1995**	**1996**	**1998**	**2000**	**2002**	**2003**	**2004**
Beaverhead/Deerlodge	65	85	52	30	30	30	--	32
Bitterroot	42	39	38	20	28	34	20	30
Custer	--	--	--	--	--	32	33	31
Flathead	43	44	43	37	30	30	--	30
Gallatin	31	45	40	25	25	25	--	24
Helena	50	58	60	33	33	31	--	27
Idaho Panhandle	71	78	55	28	32	32	--	31
Kootenai	53	58	56	35	32	32	--	32
Lewis and Clark	61	57	61	33	30	30	--	31
Little Missouri NG	80	81	--	--	--	--	--	--
Lolo	48	54	56	34	37	37	--	36
Nez Perce/Clearwater	44	40	41	29	32	32	--	47

With only 10 years of data trend interpretation caution is required, but the ASC has summaries available for some species at http://avianscience.dbs.umt.edu/trend/gettrendsbyspecies.aspx.

140 species have been observed on the Flathead land bird monitoring transects found in the table below.

Table 19-2. Bird Species on the Flathead NF From Northern Region Land Bird Monitoring Program Transects

SPECIES	ABUNDANCE	POINTS	TRANSECTS	YEARS
Common Loon	5	5	5	3
Red-necked Grebe	7	5	4	3
American Bittern	1	1	1	1
Great Blue Heron	12	8	3	2
Turkey Vulture	7	5	5	4
Canada Goose	74	28	16	6
Wood Duck	4	2	2	2
Mallard	79	12	3	2
Blue-winged Teal	1	1	1	1
Cinnamon Teal	7	3	2	1
Northern Pintail	1	1	1	1

SPECIES	ABUNDANCE	POINTS	TRANSECTS	YEARS
Green-winged Teal	2	1	1	1
Ring-necked Duck	3	1	1	1
Lesser Scaup	1	1	1	1
Common Goldeneye	15	8	3	2
Hooded Merganser	1	1	1	1
Common Merganser	4	2	1	1
Osprey	12	9	8	6
Bald Eagle	3	3	2	1
Northern Harrier	4	2	1	1
Sharp-shinned Hawk	7	7	7	5
Cooper's Hawk	11	9	8	4
Northern Goshawk	6	5	5	3
Red-tailed Hawk	55	48	42	7
Golden Eagle	1	1	1	1
American Kestrel	14	12	8	4
Ring-necked Pheasant	3	3	2	2
Ruffed Grouse	118	110	58	6
Spruce Grouse	2	2	2	2
Blue Grouse	4	4	3	3
Sora	9	8	3	2
American Coot	3	2	1	1
Sandhill Crane	19	14	8	3
Killdeer	2	1	1	1
Spotted Sandpiper	9	8	5	5
Wilson's Snipe	147	85	36	6
Wilson's Phalarope	2	1	1	1
Ring-billed Gull	11	1	1	1
Black Tern	26	8	2	1
Great Horned Owl	1	1	1	1
Northern Pygmy-Owl	1	1	1	1
Barred Owl	2	2	2	2
Northern Saw-whet Owl	1	1	1	1
Common Nighthawk	8	7	7	6
Vaux's Swift	67	33	23	6
Black-chinned Hummingbird	2	2	2	1
Calliope Hummingbird	29	29	22	6
Rufous Hummingbird	124	98	55	7
Belted Kingfisher	8	7	6	4
Williamson's Sapsucker	56	41	27	8
Red-naped Sapsucker	277	221	107	8
Downy Woodpecker	42	37	26	7
Hairy Woodpecker	157	142	94	8
Three-toed Woodpecker	42	32	26	7
Black-backed Woodpecker	11	7	3	3

SPECIES	ABUNDANCE	POINTS	TRANSECTS	YEARS
Northern Flicker	295	264	129	8
Pileated Woodpecker	200	180	96	8
Olive-sided Flycatcher	489	422	134	7
Western Wood-Pewee	17	14	10	6
Willow Flycatcher	9	7	6	4
Least Flycatcher	5	4	3	1
Hammond's Flycatcher	194	150	63	8
Dusky Flycatcher	226	175	74	7
Cordilleran Flycatcher	8	8	7	3
Western Kingbird	4	1	1	1
Eastern Kingbird	2	2	2	2
Cassin's Vireo	465	335	122	8
Warbling Vireo	921	613	167	8
Red-eyed Vireo	33	28	20	7
Gray Jay	518	345	161	8
Steller's Jay	197	155	76	8
Clark's Nutcracker	42	27	16	6
Black-billed Magpie	10	8	2	2
American Crow	21	17	8	6
Common Raven	486	333	139	8
Tree Swallow	75	35	16	6
Violet-green Swallow	12	6	4	3
N. Rough-winged Swallow	2	1	1	1
Cliff Swallow	6	2	1	1
Barn Swallow	7	4	2	1
Black-capped Chickadee	550	294	124	8
Mountain Chickadee	918	590	186	8
Boreal Chickadee	23	11	10	4
Chestnut-backed Chickadee	91	37	23	7
Red-breasted Nuthatch	1782	1054	211	8
White-breasted Nuthatch	3	2	2	2
Pygmy Nuthatch	3	2	1	1
Brown Creeper	171	142	76	8
House Wren	6	6	5	4
Winter Wren	363	313	125	6
American Dipper	6	6	6	3
Golden-crowned Kinglet	1300	833	216	8
Ruby-crowned Kinglet	1265	791	187	8
Mountain Bluebird	56	40	28	6
Townsend's Solitaire	265	221	98	8
Veery	3	3	3	2
Swainson's Thrush	2664	1341	213	8
Hermit Thrush	144	110	41	6
American Robin	839	581	184	8

SPECIES	ABUNDANCE	POINTS	TRANSECTS	YEARS
Varied Thrush	884	619	166	8
Gray Catbird	2	2	2	1
Sage Thrasher	7	4	3	1
European Starling	37	4	3	3
Cedar Waxwing	32	12	9	6
Orange-crowned Warbler	620	422	137	8
Nashville Warbler	18	15	12	5
Yellow Warbler	62	49	26	5
Yellow-rumped Warbler	1584	960	209	8
Townsend's Warbler	2027	1132	203	8
American Redstart	75	62	42	6
Northern Waterthrush	274	223	87	8
MacGillivray's Warbler	1521	943	197	8
Common Yellowthroat	109	59	19	6
Wilson's Warbler	466	334	115	7
Yellow-breasted Chat	1	1	1	1
Western Tanager	1011	670	176	8
Spotted Towhee	5	5	4	2
Chipping Sparrow	742	502	173	8
Vesper Sparrow	21	14	4	3
Savannah Sparrow	7	5	4	3
Grasshopper Sparrow	2	2	2	1
Fox Sparrow	643	444	110	7
Song Sparrow	116	89	34	7
Lincoln's Sparrow	22	20	16	5
White-crowned Sparrow	11	9	6	3
Dark-eyed Junco	2598	1330	224	8
Black-headed Grosbeak	136	105	47	6
Lazuli Bunting	37	24	14	5
Red-winged Blackbird	51	24	10	5
Western Meadowlark	8	8	4	3
Yellow-headed Blackbird	35	10	2	1
Brewer's Blackbird	3	3	2	1
Brown-headed Cowbird	141	86	42	8
Pine Grosbeak	81	62	43	7
Cassin's Finch	28	27	20	6
Red Crossbill	1582	377	131	8
White-winged Crossbill	105	43	15	3
Pine Siskin	2613	977	214	8
American Goldfinch	3	3	3	2
Evening Grosbeak	405	188	83	8

FLAMMULATED OWLS

During the summer of 2005, the ASC initiated the first-ever Region-wide survey for Flammulated owls in Montana and North Idaho. Prior to this field season, Flammulated owls had not been adequately surveyed across Forest Service lands in this Region. Using a pilot monitoring protocol, stands were selected via GIS modeling, and surveyed for owls on all 12 forests in Region 1. Flammulated owls were found on all forest except the Lewis and Clark, Gallatin, and Custer National Forests. The Nez Perce NF had the highest percentage of points with detections, followed by the Lolo, Helena, and Bitterroot Forests.

Table 19-3. 2005 Flammulated Owl Results Summary Table

FOREST	Number of TRANSECTS	Number of POINTS	YES-FLAMS (POINT)	% of POINTS YES FLAMS
Beaver Head-Deer Lodge	20	178	10	5.6 %
BITTERROOT	30	279	42	15.1 %
CLEARWATER	22	256	2	0.8%
CUSTER	23	260	0	0 %
FLATHEAD	10	93	4	4.3 %
GALLATIN	8	78	0	0 %
HELENA	25	260	41	15.8 %
ID PANHANDLE	8	157	3	1.9 %
KOOTENAI	38	376	26	6.9 %
LEWIS & CLARK	22	184	0	0 %
LOLO	30	322	46	16.5 %
NEZ PERCE	25	278	69	21.4 %
TOTAL	267	2721	243	8.9%

BLACK-BACKED WOODPECKERS

From 2004-2006, the ASC studied the influence of local and landscape conditions on the occurrence and abundance of Black-backed Woodpeckers in burned forest patches. This study is designed to uncover the response of Black-backed Woodpeckers to fires with varying pre-fire management history, fire severity, and post-fire salvage treatments within the mid-elevation mixed-conifer forest types. The Avian Service Center will use the data to better understand the conditions needed by the fire specialist to evaluate the ecological consequences of pre-fire fuels treatments and post-fire salvage logging, and to significantly improve our ability to design future treatments with predictable results, in terms of the response of fire-dependent birds. As of the Fall of 2006, ASC has completed 2 field seasons and have surveyed (via both point counts and black-backed woodpecker playbacks) 15 fires throughout western Montana and conducted standard point-count surveys at more than 900 points that were located through the stratified random sampling scheme that was developed using GIS data layers. About 300 points were visited twice to enable us to estimate probabilities of detection. Table 19-4 provides a breakdown of the distribution of sampling efforts by management agency:

Table 19-4. Black-backed Woodpecker Sampling Effort by Management Agency

Agency Name	Fire Name	Count/Playback stations	Total points revisited
Bitterroot NF	Big Creek	17	0
Flathead NF	Ball Creek	23	0
Flathead NF	Beta Doris	63	14
Flathead NF	Blackfoot Lake	62	14
Flathead NF	Crazy Horse	47	30
Flathead NF&Glacier NP	Robert	144	105
Flathead NF&Glacier NP	Wedge Canyon	158	46
Glacier NP	Trapper Creek	16	0
Helena NF	Snow Talon	33	0
Lolo NF	Black Mtn.	104	39
Lolo NF	Boles Meadow	60	28
Lolo NF	Cooney Ridge	65	10
Lolo NF	N. Howard Cr	12	1
Lolo NF	Mineral Primm	56	17
Lolo NF	Thompson Cr	51	2
	Total	911	306

After these specific surveys and a review of thousands of breeding bird point-count surveys black-backs are relatively uncommon at low densities and are almost entirely restricted to burned forests.

GOSHAWKS

In the spring and summer of 2005, the Northern Region conducted a field survey of goshawks across the accessible portions of the Region. The primary purpose of this survey was to use a statistically based approach to (1) estimate the rate of goshawk occupancy (frequency of goshawk presence) within a grid that approximates the territory size for this species and (2) better define and document the geographic distribution of goshawks across the Northern Region. Additionally, data from the survey would be used to (1) supplement previously collected field data from National Forest System lands and (2) complement a Region-wide Conservation Assessment of the Northern Goshawk that was developed by Regional Wildlife Ecologist, Fred Samson. Based on the results of this survey, the frequency of goshawk presence in the accessible portion of R1 suggests that the goshawk is a relatively common and well-distributed avian predator in the Northern Region. This conclusion is based not only on the number of detections made (40) out of 114 PSUs (primary sampling units) sampled, but also on the distribution of these detections supplemented with forest goshawk nest information that has been accumulated over the past five years. To conclude that goshawks are not exceedingly rare is further supported by the fact that we found seven new goshawk nests within the PSUs associated with the 40 documented detections. Since goshawk nests can be very difficult to locate and since crews searched for nests for only a very short time (normally less than two hours), the 0.175 new nests per detection suggests that some reproduction is occurring. Since this was the first attempt by a region to use this national protocol to estimate goshawk presence on a large spatial scale,

there are no other bases for comparison. As a result, it is difficult to draw conclusions relative to the overall population status of goshawks in the region. However, since goshawk researchers have found no evidence that goshawks are declining in the western United States and Samson demonstrated that goshawk habitat was well-distributed and abundant in R1, the estimate of goshawk presence suggests that goshawks are abundant and well-distributed throughout the accessible portions of R1 National Forest System lands within Montana and Idaho during the breeding season.

Samson documented that there have been substantial increases in the extent and connectivity of forested habitat since European settlement; the level of timber harvest of the forested landscape in the Northern Region has been insignificant (i.e. < 0.0009% in 2004); and suppression of natural ecological processes has increased and continues to increase amounts of northern goshawk habitat.

Monitoring Avian Productivity and Survivorship (MAPS)

Data collected during 2000-2001 suggest that populations remained relatively stable during the 2 years. When all species were pooled and all stations combined, breeding population size dropped by -0.4% between 1999 and 2000 and then increased by +7.4% between 2000 and 2001. The 10-year (1992-2001) analysis of adult population size indicated a decline of 1.8% per year for all species pooled and all stations combined. Overall declines were similar during the 9-year (1992-2000) period from the MAPS stations on each of 6 national forests in R6 (Washington and Oregon). Ten-year trends in productivity were generally stable with 20 of 25 species showing no substantial decline in productivity; 3 species showed significant declines (dusky flycatcher, warbling vireo and orange-crowned warbler) and 2 species showed increasing productivity trends (gray catbird and yellow warbler). According to the ASC landbird point-count data, the yellow warbler, warbling vireo, and dusky flycatcher are found 43%, 39%, and 31% of the time in riparian transects respectively. Riparian habitat has specific management standards for protection. The most common species captured at 8 stations were Swainson's thrush, dark-eyed junco, black-capped chickadee, MacGillivray's warbler, song sparrow cedar waxwing, common yellowthroat, and golden-crowned kinglet.

Many recent data reports from several different programs indicate that populations of many landbirds are in decline. The Neotropical Migratory Bird Conservation Program in 1991 was initiated and acknowledged this concern. MAPS 10-year (1992-2001) analysis of adult population size indicated a decline of 1.8% per year for all species pooled and all stations combined but overall declines were also similar during the 9-year (1992-2000) period from MAPS stations on each of 6 national forests in R6 (Washington and Oregon).

Habitat for flammulated owl on the Flathead NF is fairly restricted to drier pine and Douglas fir sites. Identification and retention of suitable habitat conditions needs to be addressed at the project level. Black-backed woodpeckers are relatively uncommon at low densities and are almost entirely restricted to burned forests. Salvage of burned timber needs to be addressed at the project level for retention of suitable habitat post-wildfire and subsequent salvage. The estimate of goshawk presence suggests that goshawks are abundant and well-distributed throughout the accessible portions of R1 National Forest System lands within Montana and Idaho during the breeding season. The goshawk was removed from the R1 Regional Forester's

Sensitive Species List in 2007 based on the information gathered at the Regional levels but will be addressed at the project levels if habitat and species is present.

Recommended Action: Continue to support regional efforts to conduct surveys and monitoring of breeding birds with a multi-forest effort for stronger statistical analysis and defensibility. Utilize species and habitat relationships information from the ASC as it becomes available for project-level analyses.